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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,453	09/21/2001	William L. Densham	O2 MICRO 00.07	5781

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HAYES, SOLOWAY, HENNESSEY,
GROSSMAN & HAGE, P.C.
130 W. Cushing Street
Tucson, AZ 85701

EXAMINER

TIBBITS, PIA FLORENCE

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 12/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/960,453

Applicant(s)

DENSHAM ET AL.

Examiner

Pia F Tibbits

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.
2. Figures 1 and 1A should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the adapter **PWM**, the **controller**, the **demodulation circuitry** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
5. The disclosure is objected to because of the following informalities: the battery charger topology disclosed on page 6 as part of an application assigned to the same entity fails to mention the US application serial no.

Appropriate correction is required.

Claim Objections

6. Claims 1, 5 and 6 are objected to because of the following informalities:

Art Unit: 2838

a) claim 1: in line 7, ---**a duty cycle**--- to replace "the duty cycle" in order to provide proper antecedence.

b) claim 5: in line 1, ---**the charge controller**--- to replace "charge controller" in order to provide proper antecedence, and ---comprises--- to replace "comprising".

c) claim 6: in line 7, ---**a duty cycle**--- to replace "the duty cycle" in order to provide proper antecedence.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 6: the use of "**and/or**" in the claims makes the claim language confusing because it is not clear what applicant is actually claiming. Furthermore, applicant is reminded that "or" should only be used with alternate terms, e.g., rod or bars, etc.

Claim 1: the statement "**a PWM generator generating a PWM signal and controller**" is unclear since it reads as if the PWM generates a controller.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2838

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaza** [5764030].

Gaza discloses in figures 1-15 a power management topology for portable electronic devices comprising portable electronic devices powered by **rechargeable batteries** 24 and 26 charged by **battery charger** 20 through the **battery charger circuit** 22. During charging of the two batteries 24, 26, **power dissipation measurements for the power supply** 28 and the power transistors Q_1 and Q_4 are made every interrupt cycle. Should the power dissipation of either the power supply or the power transistors Q_1 and Q_4 exceed acceptable levels, the charging current is controlled to cause the power dissipation to be within acceptable limits (column 3, lines 1-16). The battery charger circuit 22 is adapted to be utilized with a **power supply/AC adapter** 28. The AC adapter may include a step-down transformer T, (fig. 2) with its primary winding adapted to be connected to a 120/240 VAC voltage supply. A conventional **rectifier** RECT, electrically coupled to the secondary winding of the transformer T_1 , converts the unregulated AC voltage at the transformer secondary winding to an unregulated DC voltage. The unregulated DC voltage is input to a **DC/DC converter** circuit illustrated in fig.2B. Fig.2A represents a characteristic diagram for the DC/DC converter circuit illustrating the DC/DC converter circuit voltage (i.e., the output of the power supply 28 on the P_1 terminal) on the vertical axis as a function of the highest sensed battery voltage on the horizontal axis. The DC--DC converter circuit provides a constant output voltage V_1 up to a sensed battery of V_{BATT1} . Above a battery voltage of V_{BATT1} , the power supply 28 produces a coupled output, adding a fixed voltage to the highest sensed voltage up to a second power supply voltage V_2 , that corresponds to a battery voltage V_{BATT2} . Above V_{BATT2} , the power supply maintains a constant output voltage of V_2 . As shown in fig. 1, the **power supply/AC adapter** 28 includes **three terminals**; P_1 , used for **charging batteries** 24 and 26; P_2 , used for **monitoring the voltage/feedback** of the batteries 24 and 26; and P_3 , used for **system ground**.

Art Unit: 2838

Power to the batteries 24, 26 is under the control of a pair of power transistors Q₁ and Q₄, by way of a pair of diodes D₃ and D₄. The diodes D₃ and D₄ prevent the batteries from backfeeding the circuitry during non-charging conditions. The power transistors Q₁ and Q₄ are under the control of a pair of **pulse width modulators** (PWM). Both PWMs are driven by the microcontroller 30 and in particular the terminals X₀ and X₁, which are an input/output port.

With regard to the particular location of the pulse width modulators, i.e., with the power supply/AC adapter, absent any criticality, is only considered to be an obvious modification as it has been held by the courts that there would be no invention in shifting the location of a structure of a device to another location if the operation of the device would not thereby be modified. *In re Japikse*, 86 USPQ 70.a)

With respect to claims 1-6: the use of a RS232, RS234, Firewire, or USB cable to provide an interface connection between the power supply/AC adapter and the charger, absent any criticality, is only considered to be the use of "optimum" or "preferred" design for an element that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the cable interface connection, since it has been held to be a matter of **obvious design choice** and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. See *In re Leshin*, 125 USPQ 416. Under some circumstances, however, changes such as these may impart patentability to a process if the particular element claimed produces a new and unexpected result, which is different in kind and not merely in degree from the results of the Prior Art. *In re Dreyfus*, 22 CCPA (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 CCPA (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such changes are termed "critical" changes, and the applicant has the burden of proving such criticality. *In re Swenson et al.*, 30 CCPA (Patents) 809, 132 F.2d 1020, 56 USPQ 372; *In re Scherl*, 33 CCPA (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the Prior Art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. *In re Sola*, 22 CCPA (Patents) 1313, 77 F.2d 627, 25 USPQ 433; *In*

Art Unit: 2838

re Norman et al., 32 CCPA (Patents) 1248, 150 F.2d 627, 66 USPQ 308; *In re Irmischer*, 32 CCPA (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App. D. C. 324, 135 F.2d 11, 57 USPQ 136.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Gaza**, as described above, in combination with **Irvin** [6029074].

Gaza discloses a power management topology for portable electronic devices comprising portable electronic devices powered by rechargeable batteries charged by a battery charger through the battery charger circuit, using a power supply/AC adapter to provide power, and PWM to adjust the duty cycle of the DC voltage supplied to the portable devices. Gaza does not disclose signal demodulation circuitry.

Irvin discloses in fig.1 that received signals picked up by the antenna 30 of a mobile terminal are **demodulated** and decoded by the receiver 24 (column 4, lines 3 and 4). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to include a demodulator/receiver in Gaza's system, as disclosed by Irvin, in order to be able to decode signals from a mobile terminal interfacing with the system.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2838

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art cited in PTO-892 and not mentioned above disclose related apparatus.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (703) 308-7305. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (703) 308-1680.

15. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (703) 308-7722 or (703) 308-7724.

PFT

December 17, 2002



Pia Tibbits

Patent Examiner